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ANNOTATED BIBLIOGRAPHY OF CURRENT RESEARCH RELATED TO TRADE AND INDUSTRIAL EDUCATION.

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RESEARCH STUDIES AND ARTICLES WERE SCANNED TO SELECT INFORMATION WITH IMPLICATIONS FOR TRADE AND INDUSTRIAL EDUCATION. THE ANNOTATIONS CONVEY THE GENERAL PURPOSES OF THE STUDIES, MAJOR FINDINGS, AND CONCLUSIONS. THEY ARE DIVIDED INTO FOUR MAJOR GROUPINGS--(1) EXPERIMENTAL AND COMPARATIVE STUDIES, (2) STUDIES CONCERNING THE STUDENT, (3) STUDIES INVOLVING THE VOCATIONAL EDUCATION STAFF, AND (4) STUDIES OF A GENERAL NATURE. THERE ARE 38 ITEMS PUBLISHED FROM 1960 TO 1966. (EM)

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ANNOTATED BIBLIOGRAPHY

OF CURRENT RESEARCH RELATED TO

TRADE AND INDUSTRIAL EDUCATION

prepared by

The Vocational Education Research Coordinating Unit

Colorado State University

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This bibliography was compiled by the Occupational Research Center with the hope that the information contained herein will be of use and interest to the vocational educator in his local situation and to the research oriented individual.

Research studies and articles of interest have been scanned to select fairly recent information that has implication for trade and industrial education. With the increased emphasis on vocational preparation and improvement, those directly involved with the training programs have an obligation to keep abreast of new developments and techniques in the field of vocational education.

These annotations have been written so that they could convey to the reader, the general purposes of the studies, as well as the major findings and conclusions. They have been divided into the four major groupings of (1) experimental and comparative studies, (2) the student, or various aspects concerning the student, (3) studies involving the vocational education staff, and (4) those studies that are quite general in nature, but considered interesting, informative, and worthy of inclusion.

It is hoped that the bibliography contains all of the information necessary, so that those interested can easily obtain the complete study. If there is a need or a desire for additional information, the Vocational Education Research Coordinating Unit will assist in locating sources for the information that is desired.

SECTION I

The studies contained in this section are those that deal largely with experimental and comparative research in areas of vocational education.

It is often valuable to know the outcomes of various techniques when they are applied to education. It is especially interesting to compare different methods of teaching and to understand the way these methods influence the learning situation and students.

James, Calvin E. "An Analysis of the Effectiveness of Vocational-Industrial Day-Trade Preparatory Programs in Arizona High Schools." Arizona State University, 1963. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 25: 5631, 1965.

The purpose of the study was to determine the adequacy and the effectiveness of vocational-industrial day-trade preparatory programs in Arizona high schools.

Data was gathered on 409 day-trade graduates and drop-outs, 166 employers, and also from instructors.

It is found that interest in shop or laboratory subjects was the factor that had the greatest influence on enrollment in the program. 53.3% completed the minimum requirements in their chosen area, the 40.8% entered the occupation for which they trained. 41.8% of the former students indicated a trade or occupation unrelated to their preparatory training as one they hoped to be engaged in within 10 years. At the time of the study 53% had pursued other additional education that was unrelated to their previous preparation.

On the basis of the findings, it was concluded that although the preparatory programs, themselves, were adequate, the selection, placement, and follow-up of students were inadequate.

Bournazos, Kimon. "A Comparative Study of the Effects of Vocational Training on the Career Patters of High School Graduates." Michigan State University, 1963. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 24: 4580.

This is a study of the career patterns of 116 Metropolitan Lansing high school graduates. The principle purpose of the study was to measure the influence of vocational education on the career patterns of these graduates.

It was found that those graduates from trade and industrial public high schools exhibited the greatest stability, while non-vocationally trained parochial high school graduates were least stable. It was also determined that there was a positive relationship between high school grades and current wages. Military service does not seem to be significant in vocational preparation. About 50% of the trade and industrial graduates were employed in jobs that were not related to their specialized training.

Recommendations included the suggestion that the military service assume a greater responsibility for the vocational training of its enlistees, and that there should be a greater integration between general and vocational education. Specialized training should be provided through expansion of post-high school educational facilities, and this increasing burden should be shared by adult and continuing educational facilities and management and labor.

Rowlett, John D. "A Experimental Comparison of Direct-Detailed and Directed-Discovery Methods of Teaching Orthographic Projection Principles and Skills." University of Illinois. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U. S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to compare the effectiveness of two selected methods of instruction as measured by learning, retention, and transfer in a situation involving problem solving with meaningful materials. It was also intended to test for interaction between teaching methods and high, average, and low ability levels.

The sample consisted of 168 ninth grade boys and girls, 72 receiving directed-discovery instruction, 72 direct-detailed instruction, and 24 received no instruction. Tests were administered immediately after instruction, 12 days afterward, and again after six weeks.

It was found that the two methods were equally effective in regard to initial learning, however, the directed-discovery method was superior regarding retention and transfer of principles and skills when measured 12 days and 6 weeks after instruction took place.

Moss, Jerome, Jr. "An Experimental Study of the Relative Effectiveness of the Direct-Detailed and the Directed-Discovery Methods of Teaching Letterpress Imposition." University of Illinois, 1960. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulleton No. 299.

The purpose of this study was to provide experimental evidence as to the relative effectiveness of two methods of verbal presentation for introducing nonmanipulative material to groups of students.

106 vocational-industrial students were divided into treatment and IQ level subgroups and equated on nine pre-experimental characteristics. They received a lesson of identical content by two methods which differed in the amount and kind of teacher guidance provided. Tests concerning learning, retention, and transfer were administered over a six-week period.

It was found that the direct-detailed and the directed-discovery methods were equally effective in all three areas as measured by the tests.

Horine, John William. "Relation of Experience in High School Drafting to Achievement in Engineering Drawing at the College Level." University of Missouri, 1961. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine the relationship between high school drafting and college engineering drawing with respect to: skill development, visualizing ability, informational achievement, attitude, and final grades.

It was found that students with experience in high school drafting, even though they obtained lower scores on the Ohio State University Psychological Examination than those without the experience, obtained significantly higher skill grades, visualiization ability, informational achievement, attitude, and final grades.

It was found that students with experience in high school drafting, even though they obtained lower scores on the Ohio State University Psychological Examination than those without the experience, obtained significantly higher skill grades, visualization scores, and final grades. Students with one or more semesters of high school drafting were superior to students without the experience.

Hawlk, Robert Henry. "A Comparative Study of Estimated Achievement by Industrial Arts Students of Cooperative Work Experience Selected from the Public Secondary Schools of Pennsylvania, Ohio, and Michigan." The Pennsylvania State University, 1960. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine and compare the estimated degree of attainment of validated arts abjectives by selected students of industrial arts, and selected students of cooperative work experience programs.

It appeared that the students of cooperative work experience achieved at a higher estimated level than students of industrial arts in regard to six of the nine validated objectives. The industrial arts students achieved at a higher estimated level in two of the validated objectives, and it was about equal in regard to one.

Under proper circumstances, the techniques of cooperative work experience could be suggested for adaptation by industrial arts instructors.

Moss, Jerome, Jr. "The Influence of Industrial Arts Experience on Grades Earned in Post-High School Trade and Technical Curriculums." Minneapolis, Minnesota: University of Minnesota, Minnesota Research Coordinating Unit in Occupational Education, 1966.

Because many educators have attempted to justify industrial arts in the senior high school on the basis of its prevocational value, the major purpose of this study was to estimate the effectiveness of industrial arts experience, in the senior high school, on the success in certain post-high school trade and technical curriculum. The study examined the effect of differences in amount of industrial arts taken, grades earned in those courses, the content of those courses in relation to the post-high school curriculum in which the student enrolled, and the primary purpose for which the industrial arts courses were offered.

The study raises serious questions about the value of senior high school industrial students entering post-secondary trade and technical curricula. It was found that differences in amount, content, and objectives of the industrial arts experience had no influence on the subsequent achievement of students in the four separate clusters of trade and technical curriculums of automotive, drafting, electrical, and machine shop, pursued on a post-high school basis. Academic courses, particularly the physical sciences, seem to be as effective in the preparation of students as was industrial arts.

This indicates that industrial arts educators perhaps should not rely too heavily on the prevocational value of senior high school industrial arts in their efforts to justify it.

Schanbacher, Eugene Murry. "Identification and Analysis of Elements, Versus the Conventional Approach in Teaching Drafting." University of Missourt, 1961. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrail Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine the relative effectiveness of teaching beginning drafting by identification and analysis of elements versus the conventional approach.

Data were obtained by a comparison of the two approaches when used on 80 students.

It was found that the identification and analysis approach appeared to be more effective with respect to the number of correctly solved problems. The two approaches were about equally effective with respect to quality and quantity of drawings, attitude of students, and ability to solve sketching problems. In general, both methods are about equally effective and desirable, however, some teachers may teach more effectively using one approach or the other.

SECTION II

The student is of primary concern in all vocational education programs. This section deals fundamentally with the aspects of selection, enrollment and follow-up of students in relation to their vocational education program.

Of particular interest, perhaps, is the follow-up studies showing the comparative status of vocational education graduates and non-graduates.

Moss, John F., Jr. "A Follow-up of Drop-outs and Graduates of Schools in a Redevelopment Area with Implications for Vocational Education." University of Missouri, 1962. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 25: 5093, 1965.

The purpose of the study was to make available information concerning the educational and occupational experiences of a group of high school drop-outs and graduates of schools located in a labor surplus area.

1,399 former students of nine public high schools in Missouri were studied. These former students had either graduated or dropped out of high school. The ratio of drop-outs to graduates was roughly 1 to 6, however, the drop-outs accounted for one-half of those unemployed. Of the males that had graduated, the majority were employed in "skilled" and "service" occupations. The corresponding mean weekly wages for females was $55.40 for graduates and $22.60 for drop-outs.

A majority of the former students were interested in vocational training for upgrading, however, over one-half were not familiar with available local programs.

Of those that were unwilling to support vocational education, a majority demonstrated below average scholastic aptitude.

The author concludes, among other things, that the youth in the area studied were not being afforded equal educational opportunity, and, that as a whole, they would favor offering vocational education during the last two years of high school or on the junior college level.

The Vocational Education Research Coordinating Unit, A Follow-Up Study of 1963 Colorado High School Graduates. Fort Collins, Colorado: Colorado State University, July, 1966.

The purpose of the study was to determine the occupational and educational needs of graduates entering the labor market in comparison to how well these needs were being met by the educational facilities at the time of graduation. It was also desirable to determine how well the student was prepared for the types of occupations he would actually enter upon completion of school.

The sample studied was drawn randomly from the 1963 graduating class.

Some of the findings of the study are included in the following comments.

At the time the survey was conducted, about one-half of the sample were employed, however, only 8% of the sample had pursued a vocational major in high school. There was a tendency for the graduates to stay on a job for less than six months and the median number of jobs for the total sample was two jobs since leaving high school.

More than three-fourths of the graduates obtained additional education after leaving high school with the majority of these attending public universities and colleges. More than one-half of the sample did not consider their high school program helpful in obtaining work and one-third of the sample expressed interest in attending a local vocational school.

"High School Dropouts: Fate - Future - Identification." Southern Illinois University Research and Projects, 21-13-2-49170, January 1, 1966.

There were two main purposes of this study: 1) to study the fate and probable future of high school dropouts in Alexander County, and 2) to investigate tentative correlates which seemed to identify potential dropouts in this area. Both objective and subjective instruments were utilized as tentative correlates.

The study included the classes in the graduation years of 1963, 1964, and 1965. Some of the generalizations which were reached regarding "fate" and "future" are:

The high school graduate demonstrates more initiative than the drop-out, and the opportunities for continuing education are much greater for those with a high school diploma.

The high school graduate tends to delay commitments of marriage, employment, etc., at the same time demonstrating greater mobility and independence.

Graduates recommended high school graduation, and seemed involved in advanced studies.

Graduates have little trouble finding work after graduation, while the dropout required several months to find employment which, even then, was not lasting. The results are an uncertain future for the dropout.

Some generalizations concerning the identification of graduates and dropouts were:

(a) Graduates appeared to be more outgoing and conversant, with a better general attitude than dropouts.

(b) Poor housing as well as absenteeism at the seventh and eighth grade levels seem to be significant in identifying dropouts. The father's occupation was an especially good

measure of graduates and dropouts.

The greatest objective predictors are:

1) achievement, 2) reading placement, and 3) mathematics placement.

Lacy, Robert. "A Study of Factors Which Caused the Decline in Total Number of Students Enrolling in the Vocational Schools in the City of St. Louis in the Last Two Years." The Ohio State University, 1961. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine some of the reasons for the decline in the total number of vocational education enrollees in the City of St. Louis, Missouri.

Information was gathered from 200 students which revealed that 112 students had planned to enroll but did not because of influence of parents, teachers, and friends; lack of knowledge concerning the program; because of the idea that the resulting employment lacked security.

Dilts, Harold Eugene. "A Follow-up Study of Iowa Trade and Industrial Graduates for the Years 1957 and 1961." State University of Iowa, 1963. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 24: 4580.

The purpose of the study was to describe the nature of T & I programs in Iowa public high schools, and the relationship between this training and the jobs held by the graduates.

A sample of 1292 graduates of T & I programs was drawn from 24 Iowa schools. Evidence yielded by the study supports the conclusion that there are several inadequacies. These were in selection and placement of students, obsolecence of programs, and the opportunities for students in day trade programs.

30% of the graduates are working in the trade or an area related to the trade for which they trained, and these people expressed satisfaction with their high school program. Those not working in the area for which they trained also indicated satisfaction with their over-all high school program, but a higher proportion indicated that they would not repeat their trade training.

Coe, Burr D; and Zanzalair, Henry. "Vocational Technical School Graduates--Ten Years Later." American Vocational Journal. 40: 14-17, April, 1965.

This is a report on a follow-up study of the 1953 graduates of the three Middlesex County Vocational and Technical High Schools. A total of 108 graduates that had been enrolled in one of 16 pre-employment training programs were studied. 98 of the 108 responded to questionnaires.

The principal findings of the study were: (1) 81% of the graduates available for employment in June of 1953 obtained jobs in the occupation, or a related occupation, for which they trained. (2) those employed in their trades or occupations had a job turnover of 2.2 jobs in 10 years, while those not working in their trades had an average turnover of 3.2 jobs. (3) About one-fourth of those working in their trade had reached the foreman and/or superintendent ranking. (4) 67 of the 98 graduates were working full-time in June of 1963. (5) The majority of the graduates reported that their school training was of great help to them, and about one-third reported some form of formal schooling after high school.

The study generally indicated that this type of vocational education, provided in the high school was successful.

Livers, Davis Linn. " A Study of Relationships Between Selected Student Charachteristics and Educational-Vocational Success of Students Attending Trade, Technical, and Business Schools." State University of Iowa, 1963. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 25: 5631, 1965.

The basic purpose of this study was to examine the usefulness of some selected charachteristics from the high school record of students, in predicting the success of these students in trade, technical, and business schools, and in later vocational success.

The study was based on 300 students graduating from private schools during 1961.

The study indicates that high school grade point average and rank in class are the most reliable predictors of performance in business, trade, and technical schools. The grades themselves were the best predictors of success on the job and there is a positive relationship between academic training and vocational success. It was shown, however, that characteristics from high school records were more accurate in predicting training school success than they were in predicting success on the job which followed training.

Brown, Walter C. "Diversified Occupations Graduates of 1952: A Follow-Up Study." University of Missouri, 1959. Research in Industrial Education, Summary of Studies, 1956-1959. Washington: U. S. Department of Health, Education, And Welfare, 1961. Trade and Industrial Education Series No. 72. Vocational Division Bulletin No. 293.

The purpose of this study was to determine the relation of training received to employment status five years after graduation. This would help determine the effectiveness of the instruction in diversified occupations, and obtain suggestions from the graduate for improving the program.

Data were collected from 491 graduates of 52 schools. These data showed that after five years, 39 percent of the graduates were employed in the occupation they had trained for, and 14 percent were employed in related occupations. It was concluded that greater care should be exercised in selection and placement procedures, and job and related vocational training should be broader.

SECTION III

A quality vocational education program depends upon quality instruction. The key to quality instruction is the teacher, and the studies incorporated into this section concern staffing problems and teacher selection, preparation and development.

Vezzani, A. A. "The Vocational Teacher: Finding, Training, and Qualifing Him." School Shop, 24: 49-50, April, 1965.

The author discusses the problem facing school administrators, of obtaining qualified teachers for the many occupational programs that have been made possible by the new Act.

The basic problem, as he sees it, stems from the fact that people in vocational education are torn between the importance of occupational experience, and the college degree. In most cases, greater emphasis is placed on academic work, which can leave the educator without sufficient competence in his area to effectively teach his program, or retain the interest of students.

Several solutions have been proposed in the past, which have supplied some vocational educators, but these proposals could hardly be termed effective. The author proceeds to list some things that could be done, under existing conditions, that will provide qualified teachers. These are:

1. Establish a method of selection that will identify occupationally proficient people for the teaching program.
2. Establish a method of selection that will identify teachers, or other degree people, as candidates for employment in occupational preparation programs.
3. Divide the teacher-education courses for occupationally proficient people into the two areas of methodology and educational philosophy.
4. Revise the preservice teacher-education courses so they will be more practical.
5. Make more funds available for teacher education services.
6. Prepare more course materials for specialized areas of training.

7. Prepare and make available a greater amount of courses and services for in-service upgrading of teachers.

8. A reemphasis of itinerant teacher-education services on a larger scale is needed.

9. A complete separation of the general education and vocational education phases so that disharmony will not jeopardize the program.

The author concludes by stating that at the present time, the most practical solution is to work with the sources of teachers available, and this will mean the development of teacher-education programs to upgrade people to the level needed to fill the expanding need.

Brown, George J. "Manipulative Operations and Electronic Equipment Needed in Industrial TEacher Education, Based on Industrial Practices." University of Missouri, 1960. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of this study was to ascertain what manipulative operations the electrical worker should be able to perform in the areas of electricity and electronics. It was also intended to find out what type of electronic equipment was needed for this purpose, and to compare the manipulative operations and equipment with that in use in industrial teacher education.

Information was gathered from electronics equipment manufacturing companies, repairmen, and technicians employed in servicing electronics equipment, and college instructors teaching in departments offering two or more courses in electricity and electronics.

It was found that the sizes and types of equipment was quite similar, whether used in electronics manufacturing, servicing or in courses taught by college instructors.

Service manuals did not seem to be appropriate as textbooks in courses taught.

In contrast with industrial practices, electrical courses offered in industrial education departments, tend to include manipulative operations which are limited chiefly to electricity. There appears to be a rather close agreement between the extent to which various operations occurred in work performed by electronics production workers and repairmen, and the extent to which the same operations were found in courses taught by college instructors.

Cotrell, Calvin James. "A Study of Factors Essential to Staffing Post-Secondary Technical Education Programs." Ohio State University, 1960. Research in Industrial Education, Summaries Of Studies, 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of this study was to obtain information helpful to the administrators involved in recruiting and selecting technical teachers for post-secondary programs.

Information was compiled from selected administrators and technical teachers.

The major findings and conclusions pertain to: (a) Media for locating potential technical teachers, (b) the motives influencing persons to enter technical teaching, and (c) the tangible elements which should be considered in the selection of potentially competent and effective technical teachers.

Bender, Ralph E., "Teacher Preparation for Vocational Education." Theory into Practice, Ohio State University, College of Education, 3: 189-93, December, 1964.

Vocational education is facing some of the same problems of recruitment and training of teachers as other educational areas, and the quality and quantity of teachers will determine how well vocational education will be maintained, expanded, and extended.

Preparation of teachers has been more difficult for vocational education because of the wide diversity of objectives and educational levels of those served. They must have, not only considerable skill and knowledge of teaching technique, but also an outstanding competence in their own occupational field.

Pre-service education varies greatly from state to state and also between the services. Most states have utilized land-grant colleges, state departments of education and state boards for vocational education. These methods have not proven satisfactory in all cases.

In-service educational programs are becoming increasingly important and new and revised methods are being utilized.

Another development designed to increase the effectiveness of the teacher is the instructional-materials laboratories. Research is also emphasized, however, a great deal of development is needed in this area.

Ryan, Chester Maupin. "An Analysis of the Preparation, Selection and Training of Teachers in the Trade and Industrial Education Program of North Carolina with Implications for the Future." The University of North Carolina at Chapel Hill, 1963. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 25: 4566, 1965.

The purposes of this study were to determine the teacher training needs, to evaluate the education program, and to make proposals for training programs relative to the trade and industrial education teachers of North Carolina.

60% of 174 respondents indicated 10 of 95 possible items as representing a problem that they experienced during their initial years of teaching. Among these ten items were: the philosophy underlying all vocational education, the relationship of the different levels of government to vocational education, and fitting a vocational program into a community educational program.

30% of the teachers that experienced problems on eleven items indicated that they received no help from their teacher training program.

The study also revealed that, because of varying backgrounds, education, and work experience, individual teachers may need individual help in solving their problems.

Walsh, John Patrick. "Qualifications, Preparation, and Competencies of Trade and Industrial Teachers." The George Washington University, 1958. Research in Industrial Education, Summary of Studies, 1956-1959. Washington: U.S. Department of Health, Education, and Welfare, 1961. Trade and Industrial Education Series No. 72. Vocational Division Bulletin No. 293.

The purpose of the study is to examine the existing requirements for certification and the elements of the programs for training trade and industrial teachers. Also to study the competencies considered necessary for successful teaching and to examine methods of developing the necessary levels of competencies.

Data were gathered from trade teachers, administrators and supervisors. Committee conferences, national association reviews, and interviews were also used to collect information and a national conference summarized and analyzed the findings.

It was discovered that wide variations exist across the nation with regard to requirements for certification for trade and industrial teachers. There was less variation in trade experience requirements than in professional education requirements, however, these were not clearly defined in any of the states.

Three basic organizational plans for preparing these teachers were: 1) Designation of a college or university as a State teacher training institution, 2) appointment of a State teacher training staff, and 3) teacher training functions assumed by the State supervisory staff.

It was recommended that there be some consideration given to standardizing teacher preparation and certification because of the mobility of the teachers. An effective program of teacher training should include the elements of general education, professional education and teaching field preparation, coupled with experiences to develop the competencies needed.

SECTION IV

This section contains those studies and articles that are generally trade and industrial education related, or of general interest to the teachers of trades and industry.

These entries are not wholly experimental, but tend more toward factual and theoretical presentations. These often deal with vocational education in a general way and not with a specific area.

Vantrump, William Fredrick. "Duties, Competencies, and Opportunities for Trained Licensed Practical Nurses Working in the Hospitals of Missouri, 1961. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine the practice of Missouri hospitals in the use of licensed practical nurses, the competency of these nurses, and the employment opportunities in this vocation.

Information was gathered from hospital administrators, supervisors, and the licensed practical nurses.

It was found that though there were 723 practical nurses working in Missouri hospitals, there was an immediate need for 700 more, and a projected 3 year need for 1,100. These nurses were rated higher in competency by supervisors than they rated themselves. They were involved primarily in bed side nursing of both mildly and critically ill patients.

Salaries throughout the state were too low to attract desirable trainees in sufficient quantities to meet the needs.

Swanson, J. Chester. " Whither Vocational Education." National Education Association Journal, October, 1963, p. 58.

The political and social survival of this nation may depend on our ability to provide employment for our youth. Vocational Education can play a large part in providing a solution to the problem.

Vocational Education is that part of a school curriculum or those on-the-job activities designed to provide the skills and knowledge which will enable the student to obtain employment or to become more proficient as a worker, in providing economic security for himself and his family. It is often referred to as those educational programs subsidized by the federal government, though this does not include the training provided by business, industry, and merchandizing.

There will be an increase of nearly one million in the number of youth 18 years old seeking jobs. Many of the jobs demand skill and knowledge of those employed.

Vocational education must be readily available to youth in or out of school and to adults if it is to make its utmost contribution.

It is difficult to estimate how much vocational education is available in American high schools, however, a comparison between the curriculums existing for occupational training and the occupations in which employment is probable points out that realistic vocational education is unavailable in today's high schools.

The best placement results have occured in the cooperative work-study programs, however good vocational education serves the individual well. The North Atlantic Study shows that of the 1959 high school graduates who had been enrolled in trade and

industrial curriculums, only 5% were unemployed, while 15% of all 1959 high school graduates were unemployed.

A high school student must make the decision of entering a vocational curriculum or not, by the time he reaches the 10th or 11th grade. For this reason, good guidance personnel and programs are needed. They must supply the career information that the everage high school student lacks.

Some of the trends and needs of vocational education are:

a) Vocational education must be make available to those out of school, whether youth or adult.

b) High standards must be maintained in all programs of occupational training.

c) People with special needs, should have special vocational curriculums developed for them.

d)Vocational education must be a continuous process that does not terminate with completion of pre-employment training.

e) American high schools should do as much toward preparing students for work as they do toward preparing them for college. Vocational education is not just an ideal, it is a necessity.

Wenrich, Ralph C. "Vocational Education." National Education Association Journal, 50: 16-18. February, 1961.

College preparatory programs are no longer appropriate for a growing number of high school youth. While general education is essential to everyone, there is a growing realization that this is not enough. High School administrators and counselors are becoming more concerned about some kind of specialized education, for those youth who will not go on to college, which will prepare them for employment.

This concern is based on several trends in society and education: Advances in technology emphasize the need for skilled manpower; studies show that high school youth are quite concerned about vocational choice and preparation; polls indicate that laymen, particularly parents, expect high school to make a direct contribution to preparation for employment; though the percentage of high school youth not planning a college career is not increasing, the number of these people grows. Along with this growth is an increasing need to do something about the preparation of these young people.

If it is true that there is a greater need for better trained workers, and that youth have a need for job preparation, then either the schools of the future will do a better job of meeting these needs, or, there will develop a modern counterpart of the National Youth Administration to do the job.

The education needed to prepare youth for employment can be provided in either comprehensive high schools or in specialized vocational schools. The area school concept is growing more popular and then will concentrate on youth preparation for all types of employment.

Preparation for employment is the responsibility of all members of the school faculty, even the nonvocational teachers.

The training provided should be broad so that a wider range of employment possibilities exist, but it should be specific enough so that the student has a saleable skill. The program should also be a well-balanced program containing both vocational and general education courses. Even though the program bay be good, it cannot give the preparation that will last a lifetime. It should make possible satisfactory initial adjustments to the world of work, and continuing education can be provided in adult and post-high school programs.

Cornelsen, Leroy A. "The Economics of Training the Unemployed." School Life, October 1964. pp. 17-18.

A study made by the Office of Education produced further evidence that money spent on education is a sound investment.

A sample of nearly 13,000 persons that had received training during the first two years after the enactment of the Manpower Development and Training Act, were studied.

At the time these were referred for training, they were all unemployed. One-third of the sample was eligible for unemployment benefits, which, at the average rate, would have cost the public nearly $2 million a year. Public assistance to those eligible would amount to more than $1.5 million a year.

Under the Manpower Act, these people were trained for existing jobs in their states. Training costs, including salaries for staff, supplies, equipment, training allowances paid to those eligible, and transportation and subsistence allowances totaled $13.3 million or $1,045 for each trainee.

Two out of ten enrollees dropped out but 70% of those completing training found jobs immediately. During a 24 week period, this 70% earned a total of $13.7 million which is greater than that spent on the entire 13,000 for training.

The returns can be expressed in these other ways:

Assuming an average annual federal income tax of $220, the trainee will repay the cost of his training in 5 years.

In one year of employment, the average trainee will earn $3,135 more than the cost of his training.

Over a 5 year period, an investment of $13.3 million is expected to earn a gross return of over $148 million.

A gross return of $2.24 a year is expected from each dollar spent in training.

Wolfbein, Seymour L. "Employing the Next Generation." School Shop. 24: 25-26, February, 1965.

In this article on, "How to make the next generation employable," the author makes several points concerning educational attainment, that affects the employability of the individual.

One of every three unemployed persons never entered high school, and two of every three entered, but did not graduate. One of every six persons examined for entry into the armed services fails to pass the Armed Forces Qualification Test, which measures a persons ability at about the eighth grade level. A survey of these rejects showed that about 50% came from families of six or more children and 20% were from families that had been on relief during the past five years. 70% of them never went beyond grade school.

In 1963 the population explosion was felt in the labor force when the number of 16 year old people increased by one million. The unemployment rate for teenagers also increased to a record 18%.

The following recommendations are made to help make the next generation employable:

1. Begin earlier, in the elementary school, to provide a complete guidance and counseling program. A resurgence of interest in terms of substance and programs is needed at this level.

2. We must put an end to discrimination.

3. An improvement in the field of vocational education is needed. At the present, it does not have the dignity, up-to-datedness, or the status of other secondary school curriculums.

4. School systems must take on greater responsibility for the training and retraining of adults. A 20 year old American male

will make about six distinct job changes during his working life, and they will have to be taught the new skill they must have for continued employment.

5. An overall improvement is needed in education. 20% of the people failing to pass the Armed Forces Qualification Test, though they are high school graduates, cannot meet the eighth grade level requirements.

Automation, though decreasing the number of workers needed in some fields, is increasing those needed in others. The growth appears to be in those industries for those occupations requiring the greatest amount and the highest quality of training and education.

Prakken, Lawrence W. "Desegregating Vocational Education." School Shop, 24: 2, May, 1965.

The separation between vocational and general education is discussed in this short article.

The author states that most school administrators feel that the reading program is one of their most important responsibilities, but feel no sense of urgency or concern about vocational education. He lists two primary reasons for the off-handed treatment of vocational education. The first is the general-education problem. Where once, teaching of basic education programs had a basic occupational orientation, they have gradually drawn away from this and now are less occupationally oriented than ever before. The second is, the historic division of services within vocational education itself.

While the new Vocational Education Act provides for flexibility and reorganization of vocational education, that should bring the services closer together, the problem of reorienting general education occupationally is more difficult. Both must be worked at.

Rodehorst, Wayne LeRoy. "An Analysis of the Introduction of Vocational-Technical Education Programs in Michigan Community Colleges Established Before 1930." Michigan State University, 1964. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 25: 5093, 1965.

The main purpose of this study was to reveal the major causes that produced the vocational-technical programs now found in the colleges studied, and to arrive at some conclusions that may help those engaged in similar curriculum planning.

It was found that the major influence in establishing vocational-technical education in these colleges was the interest of persons in the colleges themselves.

Deterants to the development of these educational programs were listed as: Attitudes toward vocational-technical education, university influence, and apathy.

Arthur, Robert. "What Industry Expects of Youth." American Vocational Journal, 40: 18-20, April, 1965.

American industry is faced with everchinging problems and opportunities, changing markets, changing production methods, increases in capital requirement, different personnel needs, and a complete system of regulations and controls. Survival now depends, more than ever, in quality of human resources. Technological development is one facet of a sound economy, and manpower is the Key to Technological development. The ability of industry to grow depends on its willingness to go along with and develop technological change and to deal with the problems that result.

Fewer operators will be needed in the production of goods, but there will be an increase in the number of engineers and technicians needed. Job opportunities for young men with limited potential are rapidly disappearing. The industrial employee will be required to perform complex tasks, follow complicated directions, communicate his ideas, solutions and directions to others.

To be able to do this, industry expects the prospective employee to have determined his general field, to know what will be required of him in that field, and to have developed the basic skills that are needed.

Byran, Harold M. "Evaluating Vocational Education in the Public Schools." East Lansing Michigan: Michigan State University, College of Education. Educational Research Series, Number 32, October, 1965.

There were three major purposes of this study: 1) to develop a generalized procedure for making an evaluation in a public school system, 2) to utilize and further test the recommendations of the Michigan Vocational Education Evaluation Project study in the light of local community conditions, and 3) to assist selected public school systems to evaluate and replan their programs of vocational education.

Though there were several direct outcomes of the study, the one of most value to the staff and administration of the local public school, is the manual which was prepared for use in conducting local evaluations:

Byran, Harold M. "Evaluation of Local Vocational Education Programs - Manual for Administrators, Teachers, and Citizens." Bureau of Research and Publications, College of Education, Michigan State University, East Lansing, Michigan, 1965.

Moss, Jerome, Jr. "An Estimate of Quantitative Occupational Training Requirements for Indiana, 1960-1970." Purdue University, 1960. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine the number of people who would need some type of vocational education in Indiana between the years 1960 and 1970, with emphasis on trade and industrial occupations.

The number of persons needing retraining or upgrading, and the number of new entrants to the work force are reported separately for all major occupational groups, and for specific occupationally and educationally homogeneous groups of trade and industrial occupations.

Brydle, John Robert. "Analysis of Major Electronics Technician Training Problems Encountered by Leading Electronics Systems Manufacturers in the United States." Wayne State University. 1960. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to collect and analyze the major technical training problems of commercial organizations offering electronics technician training programs.

Information was collected from 50 leading electronics systems manufacturers in the United States.

The ten leading problems revealed by the respondents were:

1. The students often lack a good foundation in mathematics and basic sciences.
2. There was not enough time to train instructors in both theoretical and practical aspects of the equipment they taught.
3. Technical manuals were inadequate for training.
4. It was difficult to obtain enough laboratory equipment.
5. There was a shortage of instructors.
6. There was not enough time to train instructors in teaching techniques.
7. Better tests of the students ability to maintain equipment were needed.
8. Training supervisors were not close enough to training problems, and could not keep up to date on new equipment being taught.
9. Some students took their work too lightly.
10. Some instructors needed more field experience on the equipment they taught.

Kavieff, Melvin Charles. "Requirements for Selected Occupations in the Automotive Industry with Implications for Technical Education at the Postsecondary Level." Wayne State University, 1961. Research in Industrial Education, Summary of Studies 1960-61. Washington: U. S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine the requirements of selected occupations in the automotive manufacturing industry of the Detroit area, with implications for postsecondary technical education.

A survey was conducted to obtain a consensus from industrial and educational authorities concerning technical occupation configuration and growth in the years ahead.

It was found that the technician as now defined and described has no rigid delimitation with regard to his function, range of operation, and definition.

It was concluded that there is a need for postsecondary educational programs and facilities to prepare technicians for the Detroit automotive industry. In 1960, there were two technicians for every engineer in this Detroit industry.

Berlin, Theodore John. "Welding in the Junior High School." The Ohio State University, 1961. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of this study was to determine the status, and the reasons for such status, of welding in the junior high school industrial arts curriculum. Information was collected from 68 selected school systems.

Welding was incuded in only 32 percent of the school systems in their junior high school curriculum. More than one-half of the sample indicated that they did not feel it was an appropriate curriculum area in the junior high school. The reasons that were given for not including welding were: immaturity of the students, safety factors, cost, the relative importance compared to other areas, time, and the relative importance compared to other metal working areas.

The reasons for having it included were: It is a modern fabrication process, demonstration purposes, and for fabricating projects.

Koch, Harold Herman. "Educational Specifications for Secondary School Shops." University of Nebraska Teachers College, 1964. Dessertation Abstracts, AnnArbor, Michigan: University Microfilms, Inc. 25: 5682.

The purpose of the study was to determine basic educational specifications of modern school shops, that could serve as a guide to those involved in design. The study was limited to technical and comprehensive, midwestern secondary schools. Eight types of shops were studied: 1) general, 2) automotive, 3) drafting, 4) electricity, 5) graphic arts, 6) machine, 7) sheet metal, and 8) woodworking.

Evidence yielded by the study supported several conclusions among which are: Community needs, student needs, future enrollment, method of instruction, class size, objectives, types of activities, and program organization are factors that will influence planning.

Recommendations concerning size, shape, location, and auxiliary facilities are also included.

Prichard, Neal Wayne. "Selected Factors Affecting School Administrators' and School Board Members' Attitudes Toward Vocational Trade and Industrial Education in Pennsylvania." The Prnnsylvania State University, 1962. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 23: 3738.

The purpose of the study was to analyze the relationship of selected personal characteristics with the attitudes of school board members and administrators toward vocational trade and industrial education.

A total of 64 administrators and 415 school board members were included in the study. Also selected randomly, were 16 schools that offered trade and industrial education and 16 schools that did not.

School board members, representing both types of schools, who had heard of the curriculum from counselors, industry, and labor organizations had a more favorable attitude than those that had not heard of it from these sources. In those schools offering T & I education programs, the older school board members with more years of experience had a more favorable attitude, however in schools that had no programs, these factors had no relationship to the attitudes.

Neither the occupation nor the educational background of those board members of schools having programs, were related to their attitudes, however in schools without programs, the board members in blue-collar occupations had a more favorable attitude than members in white-collar occupations.

Within the group of administrators, it was found that the superintendents had a better attitude than principals in schools having T & I programs. Those administrators having undergraduate education majors had the most favorable attitude. Several factors are also listed that had no significant relationship with their

attitudes.

The study suggests a need for more and better information and public relations for trade and industrial education. Amount and kind of information possessed by individuals appears to have a significant relationship to the attitudes toward trade and industrial education.

Van Tries, Robert P. "In Minnesota--A Status Report on Industrial Education." Industrial Arts and Vocational Education. 53: 18, December, 1964.

This is a report on the status of Industrial Education and the progress made, since Minnesota passed the Area Vocational-Technical School Law in 1945. The author states that during this period, 16 schools have been approved and are now operating. The Area Vocational-Technical School Law very closely parallels the philosophy expressed in the Vocational Education Act of 1963. Preparatory program enrollment has nearly reached 5000, and the evening extension and supplementary program enrollment nearly 50,000.

The administration of the area vocational-technical schools is working closely with the industrial arts, office training, and agriculture programs in the high schools, because they recognize its value as a counseling device for the area school programs.